

What is claimed is:

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1. A non-aqueous electrolyte secondary battery comprising;
a positive electrode and a negative electrode capable of
intercalating and de-intercalating lithium;
a non-aqueous electrolyte solution; and
a solid electrolyte,

wherein said negative electrode contains a composite particle
constructed such that at least part of a surface of a nuclear particle containing
at least one of tin, silicon and zinc as a constituent element is coated with one
of;

a solid solution, and
an inter-metallic compound,

which are composed of an element included in said nuclear
particle and at least one element, exclusive of the element included in said
nuclear particle, selected from a group of elements in a Periodic Table,
comprising group 2 elements, transition elements, group 12 elements, group
13 elements and group 14 elements exclusive of carbon,

and said solid electrolyte is a polymer gel electrolyte.

2. The non-aqueous electrolyte secondary battery of claim 1,
wherein said positive electrode includes a lithium-containing composite oxide
and a polymer composing said polymer gel electrolyte, and said negative
electrode includes said composite particle and a polymer composing said
polymer gel electrolyte.

3. The non-aqueous electrolyte secondary battery of one of claim 1
and claim 2 wherein main structure of said polymer is one of polyalkylene
oxide and a derivative of the same.

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4. The non-aqueous electrolyte secondary battery of one of claim 1

and claim 2 wherein said polymer is one of a polymer and a copolymer including at least one monomer selected from a group comprising acrylonitrile, vinylidene fluoride, hexafluoro-propylene, tetrafluoro-ethylene, and perfluoro-alkyl vinyl ether.

5. The non-aqueous electrolyte secondary battery of one of claim 1 and claim 2, wherein said polymer is a polyester polymer whose main structure is one of polyester and a derivative of the same.

6. The non-aqueous electrolyte secondary battery of one of claim 1 and claim 2, wherein said polymer is a copolymer of methacrylate and an ethylene oxide.

7. The non-aqueous electrolyte secondary battery of one of claim 1 and claim 2, wherein said polymer gel electrolyte includes at least one of structural reinforcements selected from a hydrophobic treated particulate, and a fiber or a non-woven fabric of a polyolefin polymers.

8. A non-aqueous electrolyte secondary battery comprising;
a positive electrode and a negative electrode capable of intercalating and de-intercalating lithium;
a non-aqueous electrolyte solution; and
a solid electrolyte,

wherein said negative electrode contains a composite particle constructed such that at least part of a surface of a nuclear particle containing at least one of tin, silicon and zinc as a constituent element is coated with one of;

a solid solution, and

an inter-metallic compound,

which are composed of elements included in said nuclear particle and at least one element, exclusive of the element included in said



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a first component including at least a lithium sulfide;
a second component including at least one of a silicon sulfide,
a phosphor sulfide and a boron sulfide; and
a third component including at least one of lithium phosphate,
lithium sulfate, lithium borate, lithium silicate.